



## Combined Strengths for Customized Solutions

Innovative two-pack VOC-free  
polyurethane solutions based on  
low viscosity SUPRASEC® MDI-based  
isocyanates and castor oil-based  
100% ALBODUR® polyols

... cooperating for future demands!



**ALBERDINGK BOLEY**

**HUNTSMAN**

Enriching lives through innovation

## Bespoke solutions meeting individual customer needs

In 2007, Huntsman Polyurethanes teamed up with renewable resource-based polyol producer Alberdingk Boley to co-develop polyurethane solutions for the coatings market. At the time, the shared vision was to collaboratively develop new concepts for two-component polyurethane coatings, free from volatile organic compounds (VOCs).

Having achieved their goal in the coatings sector, the two companies have now extended the scope of their work to include applications in adhesives and elastomers markets.

Today, concepts based on Huntsman Polyurethanes' advanced SUPRASEC® MDI-technology, and Alberdingk Boley's ALBODUR® polyols, offer customers in Europe, America and the Middle East the chance to create high performance adhesive, coating and elastomer solutions that can meet strict environmental regulations regarding volatile organic compounds (VOCs).

In addition to meeting key environmental regulations, products developed by Huntsman Polyurethanes and Alberdingk Boley can have key advantages over existing products, including ease of use.

ALBODUR® is a range of VOC-free, 100% polyols based on renewable resources. The hydrophobic backbone and low viscosity of ALBODUR® can offer customers significant processing benefits over established products when combined with Huntsman Polyurethanes' isocyanates technology.

The partnership between Huntsman Polyurethanes and Alberdingk Boley provides customers with highly versatile, bespoke solutions that can be engineered for a diverse number of applications. Testing by the TÜV SÜD Industrie Service GmbH, an independent German Technical Inspection Association, has shown excellent results.

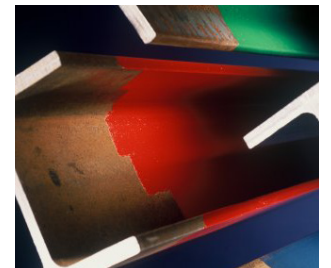
## A partnership for customized solutions that can exceed your future requirements!

The partnership between Huntsman Polyurethanes and Alberdingk Boley is a huge step forward and is bringing about a new level of product innovation.

The result of marrying the two companies' chemistries together is adhesive, coating and elastomer (ACE) solutions that can be engineered to meet individual customer needs.



Premium  
VOC-free flooring



Corrosion  
protection



Construction  
adhesives



Steel  
protection



Encapsulation



## Benefits

Hydrophobic, two-component, polyurethane systems based on SUPRASEC® MDI and ALBODUR® polyols have the following advantages:

- cure at temperatures between 5°C and 30°C
- cure profile can be adjusted to individual needs
- 100% solids and thus VOC-free PU systems

## Selection table

SUPRASEC® Isocyanates	ALBODUR® Polyols	Applications									
		Flooring			Spray coatings (1:1)	Elastomers		Adhesives			
		Soft/Flexible	Industrial	Sport Floors	Industrial	Encapsulants	Cold Cast Systems	Parquet Glue	Wood	Construction	
1007	A 901								x		
9584	A 912		x						x	x	
2496	A 901	x							x		
	A 912		x						x		
	A 921		x						x		
	A 941		x								
2651	A 901		x						x		
	A 912		x						x		
	A 903					x					
	A 921		x			x	x				
2647	A 903	x				x	x				
	A 901	x									
	A 912		x						x		
	A 921		x			x	x	x	x		
2029	A 903				x						
	A 901				x						
	A 921				x						
	A 941				x						x
2067	A 903					x					
	A 901					x					
2211	A 903						x				
	A 921						x				
	A 941						x				
5025	A 921									x	
2085	A 941						x				
2330	A 901	x									
	A 903	x									
	A 921		x						x	x	x

## NCO/OH ratio calculation

The stoichiometric relationship of NCO/OH=1:1 is established when one equivalent of SUPRASEC® is combined with one equivalent of a hydroxyl-bearing product, for example:

- SUPRASEC® 2496 = NCO equivalent weight approx. 134
- ALBODUR® 912 VP = OH equivalent weight approx. 270

The stoichiometric (100%) crosslinking of 270g ALBODUR® 912 VP requires 134g SUPRASEC® 2496. The equivalent weight is a guide value.

The quantity of SUPRASEC® required to provide optimum results in a given application is best determined by trials.

These differences are expressed by the NCO/OH ratio of the co-reactants used.

The ratio for any SUPRASEC®/ALBODUR® combination can be calculated as shown below:

$$\text{NCO/OH ratio} = \frac{\text{pbw SUPRASEC}^{\circledR} \times 17 \times \% \text{NCO}}{\text{pbw ALBODUR}^{\circledR} \times 42 \times \% \text{OH}}$$

$$\text{NCO/OH ratio} = \frac{\text{pbw SUPRASEC}^{\circledR} \times \text{equiv.weight ALBODUR}^{\circledR}}{\text{pbw ALBODUR}^{\circledR} \times \text{equiv.weight SUPRASEC}^{\circledR}}$$

**Alberdingk Boley GmbH** is a leading German producer of water-based binders for coatings and finishes of all substrates. Originally established in 1828, Alberdingk Boley is the leading European supplier of castor oil and linseed oil as well as its derivatives. Thanks to their broad range of applications, water-based polyurethane and acrylate dispersions today form the basis of the company's product portfolio. Launched in 2005, the new generation of

ALBODUR® 100% polyols, based on renewable resources, successfully combines the company's vast background in oleochemicals with its state-of-the-art technologies for polymerization. Based in Krefeld (Germany) and with facilities in Kerpen (Germany), Greensboro (USA) and Shenzhen (China), the independent, privately-owned company operates worldwide. In 2011, 300 employees generated a turnover of approx. € 190 M.

## Worldwide network for unrivalled customer service

The combined expertise and global reach of Huntsman Polyurethanes and Alberdingk Boley is of significant benefit to polyurethanes customers and formulators around the world.

### Alberdingk Boley contact details:

ALBODUR® range: [albodur@alberdingk-boley.de](mailto:albodur@alberdingk-boley.de)  
More information about Alberdingk Boley and the complete product range can also be found on the company's website at: [www.alberdingk.com](http://www.alberdingk.com)

For more information about Huntsman Polyurethanes please contact:  
**ACE@huntsman.com** or go to: [www.huntsman.com](http://www.huntsman.com)

### Disclaimer Alberdingk Boley GmbH:

The aforesaid information is based on our present state of knowledge and shall inform about our products and their application possibilities. It is not intended to assure certain characteristics of the products and their suitability for precise application fields. The advisory service does not exonerate you from an independent examination of our advices and products on your own with regard to their suitability for the methods and purposes intended. Downstream applications, use and processing of our products as well as of the products produced due to our application technology advices are carried out beyond our control possibilities and come therefore under your area of responsibility exclusively. Products including "VP" in their label are trial products during test stage. For these products Alberdingk Boley is only able to provide preliminary characteristics without obligation. Subject to change without prior notice. ALBODUR® is a registered trademark of Alberdingk Boley or an affiliate thereof in one or more, but not all, countries.



### Huntsman Polyurethanes

is part of Huntsman, a global manufacturer and marketer of differentiated chemicals. Huntsman's operating companies manufacture products for a variety of global industries, including chemicals, plastics, automotive, aviation, textiles, footwear, paints and coatings, construction, technology, agriculture, health care, detergent, personal care, furniture, appliances and packaging.

Originally known for pioneering innovations in packaging and, later, for rapid and integrated growth in petrochemicals, Huntsman has approximately 12,000 employees and operates from multiple locations worldwide. The Company had 2011 revenues of over \$11 billion.

For more information about Huntsman, please visit the company's website at: [www.huntsman.com](http://www.huntsman.com)



### Disclaimer Huntsman Corporation:

While all the information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE. IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE. The sale of products referred to in this publication is subject to the general terms and conditions of sale of Huntsman Corporation of its affiliated companies.

SUPRASEC® is a registered trademark of Huntsman Corporation or an affiliate thereof in one or more, but not all, countries. Copyright © 2012 Huntsman Corporation.